

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD-HELEN PAD
HELEN 2536-06H**

**Plan B
Design #2**

Anticollision Summary Report

17 December, 2021

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Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well HELEN 2536-06H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4945.00usft (Drilling Rig)
Reference Site:	2N-64W-24 ARNOLD-HELEN PAD	MD Reference:	RKB = 20' @ 4945.00usft (Drilling Rig)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HELEN 2536-06H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Plan B	Database:	EDM 5000.16 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference	Design #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 1,500.00usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Added to Error Values

Survey Tool Program	Date	12/17/2021			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,908.00	Design #2 (Plan B)	ISCWSA MWD	Fixed:v2:standard declination	
1,908.00	17,056.54	Design #2 (Plan B)	ISCWSA MWD	Fixed:v2:standard declination	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
2N-63W-19 KBL PAD						
KBL 1930-07H - Wellbore #1 - Design #1						Out of range
2N-64W-13 L.E. GERKIN PAD (RED HAWK)						
L.E. GERKIN 10H - Red Hawk Planned Well - Cathedral	6,641.13	16,489.70	1,325.68	1,084.61	5.499	CC, ES
L.E. GERKIN 10H - Red Hawk Planned Well - Cathedral	6,650.00	16,489.70	1,325.73	1,084.63	5.499	SF
L.E. GERKIN 11H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 12H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 13H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 14H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 15H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 9H - Red Hawk Planned Well - Cathedral P	6,646.76	16,541.50	1,042.79	814.92	4.576	CC, ES, SF
2N-64W-13 Offsets						
ARNOLD #1 - Barrett Resources P/A Well - No Surveys						Out of range
DARYL L ARNOLD #1 - Amoco D/A Well - No Surveys						Out of range
2N-64W-24 ARNOLD-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	2,961.84	3,018.12	70.66	41.84	2.452	CC, ES
BOYD 2413-05H - Plan A - Design #1	6,768.89	6,925.66	147.68	81.64	2.236	SF
BOYD 2413-06H - Plan A - Design #1	2,126.97	2,177.22	250.47	229.50	11.945	CC
BOYD 2413-06H - Plan A - Design #1	2,300.00	2,349.20	251.19	228.80	11.219	ES
BOYD 2413-06H - Plan A - Design #1	6,756.82	6,916.39	355.61	289.49	5.378	SF
BOYD 2413-07H - Plan A - Design #1	223.00	222.00	294.09	286.51	38.777	CC, ES
BOYD 2413-07H - Plan A - Design #1	6,900.00	6,888.38	866.56	797.87	12.615	SF
BOYD 2413-08H - Plan A - Design #1	223.00	222.00	306.06	298.47	40.355	CC, ES
BOYD 2413-08H - Plan A - Design #1	7,314.35	6,750.00	1,415.04	1,337.46	18.240	SF
BOYD 2413-09H - Plan A - Design #1	223.00	222.00	318.59	311.01	42.007	CC, ES
BOYD 2413-09H - Plan A - Design #1	5,600.00	5,424.58	1,478.51	1,425.50	27.893	SF
BOYD 2413-10H - Plan A - Design #1	202.90	201.90	331.22	323.65	43.753	CC
BOYD 2413-10H - Plan A - Design #1	223.00	221.96	331.22	323.64	43.673	ES
BOYD 2413-10H - Plan A - Design #1	2,000.00	1,911.04	653.95	634.08	32.913	SF
BOYD 2413-11H - Plan A - Design #1	200.00	198.00	343.92	336.35	45.444	CC, ES
BOYD 2413-11H - Plan A - Design #1	2,000.00	1,827.58	757.35	737.83	38.790	SF

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Reference Well:	HELEN 2536-06H	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore	Plan B	Database:	EDM 5000.16 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

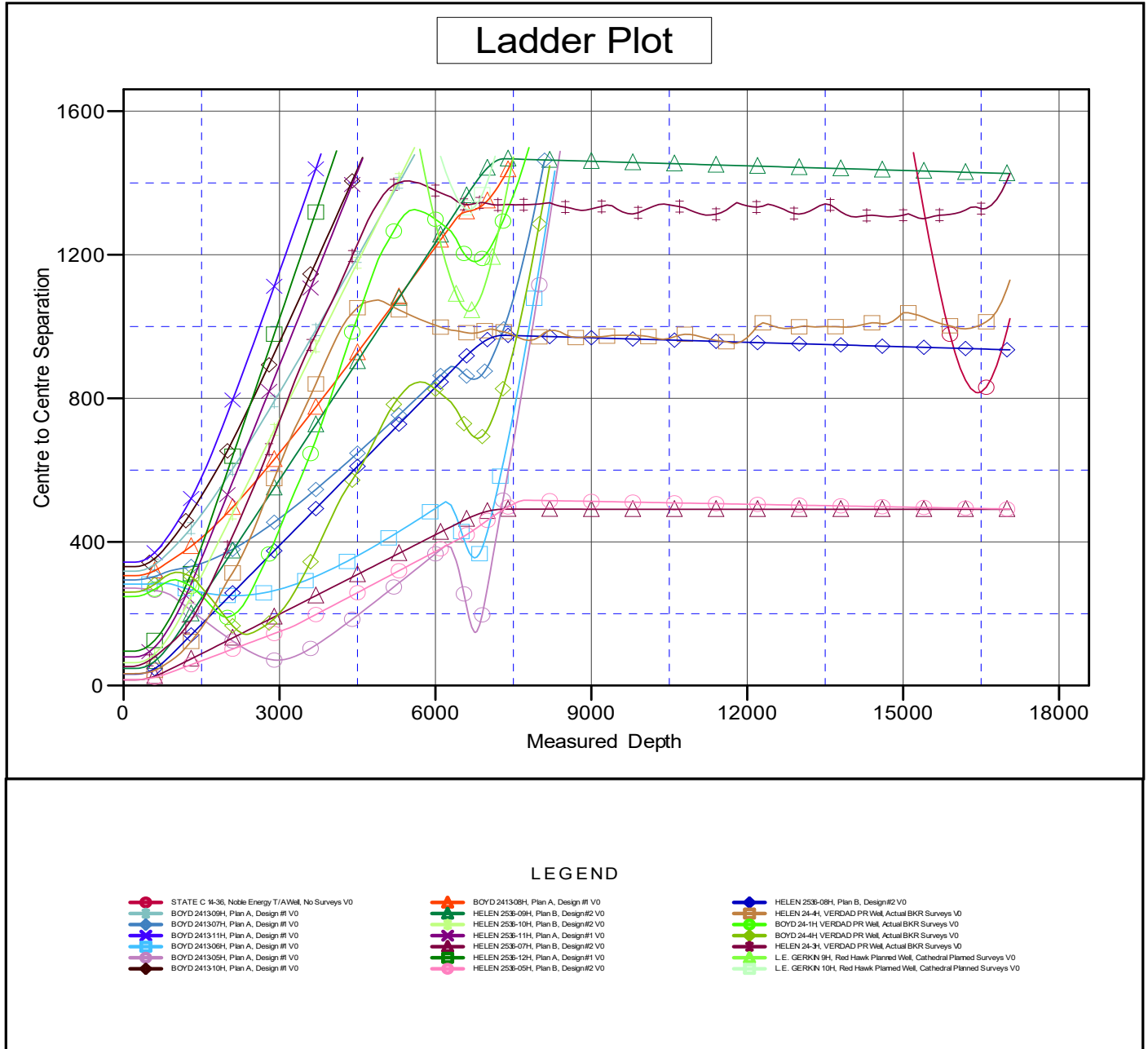
Summary						
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Offset Well - Wellbore - Design						
2N-64W-24 ARNOLD-HELEN PAD						
HELEN 2536-05H - Plan B - Design #2	200.00	199.00	16.22	8.65	2.143	CC
HELEN 2536-05H - Plan B - Design #2	17,056.54	17,088.21	491.87	-41.00	0.923	Level 1, ES, SF
HELEN 2536-07H - Plan B - Design #2	223.00	223.00	15.94	8.36	2.102	CC
HELEN 2536-07H - Plan B - Design #2	17,056.54	17,052.10	491.00	-43.51	0.919	Level 1, ES, SF
HELEN 2536-08H - Plan B - Design #2	223.00	223.00	31.88	24.30	4.203	CC, ES
HELEN 2536-08H - Plan B - Design #2	17,056.54	17,084.61	935.31	400.95	1.750	SF
HELEN 2536-09H - Plan B - Design #2	223.00	222.00	47.82	40.24	6.305	CC, ES
HELEN 2536-09H - Plan B - Design #2	17,056.54	17,149.08	1,426.34	891.99	2.669	SF
HELEN 2536-10H - Plan B - Design #2	223.00	222.00	63.76	56.18	8.407	CC, ES, SF
HELEN 2536-11H - Plan A - Design #1	203.14	202.14	79.98	72.41	10.565	CC
HELEN 2536-11H - Plan A - Design #1	223.00	221.95	79.98	72.40	10.546	ES, SF
HELEN 2536-12H - Plan A - Design #1	200.00	199.00	95.92	88.36	12.674	CC, ES
HELEN 2536-12H - Plan A - Design #1	223.00	221.38	95.99	88.41	12.658	SF
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	1,981.06	2,063.43	189.72	171.42	10.366	CC
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	2,000.00	2,080.64	189.91	171.20	10.149	ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	2,200.00	2,275.68	206.12	183.78	9.227	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	2,360.05	2,446.11	142.41	121.65	6.861	CC
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	2,400.00	2,484.30	142.93	121.23	6.588	ES
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	2,600.00	2,684.85	155.87	130.40	6.121	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	144.94	142.96	53.11	45.56	7.035	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	16,600.00	16,883.00	1,329.55	830.09	2.662	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	100.00	96.97	33.03	25.50	4.385	CC, ES
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	16,500.00	16,590.20	1,005.50	516.16	2.055	SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve						Out of range
2N-64W-36 Offsets						
STATE C 14-36 - Noble Energy T/A Well - No Surveys	16,440.58	6,819.00	815.74	322.90	1.655	CC, ES, SF
STATE C 41-36 - Prima Exploration P/A Well - No Survey						Out of range

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Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB = 20' @ 4945.00usft (Drilling Rig)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: HELEN 2536-06H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°



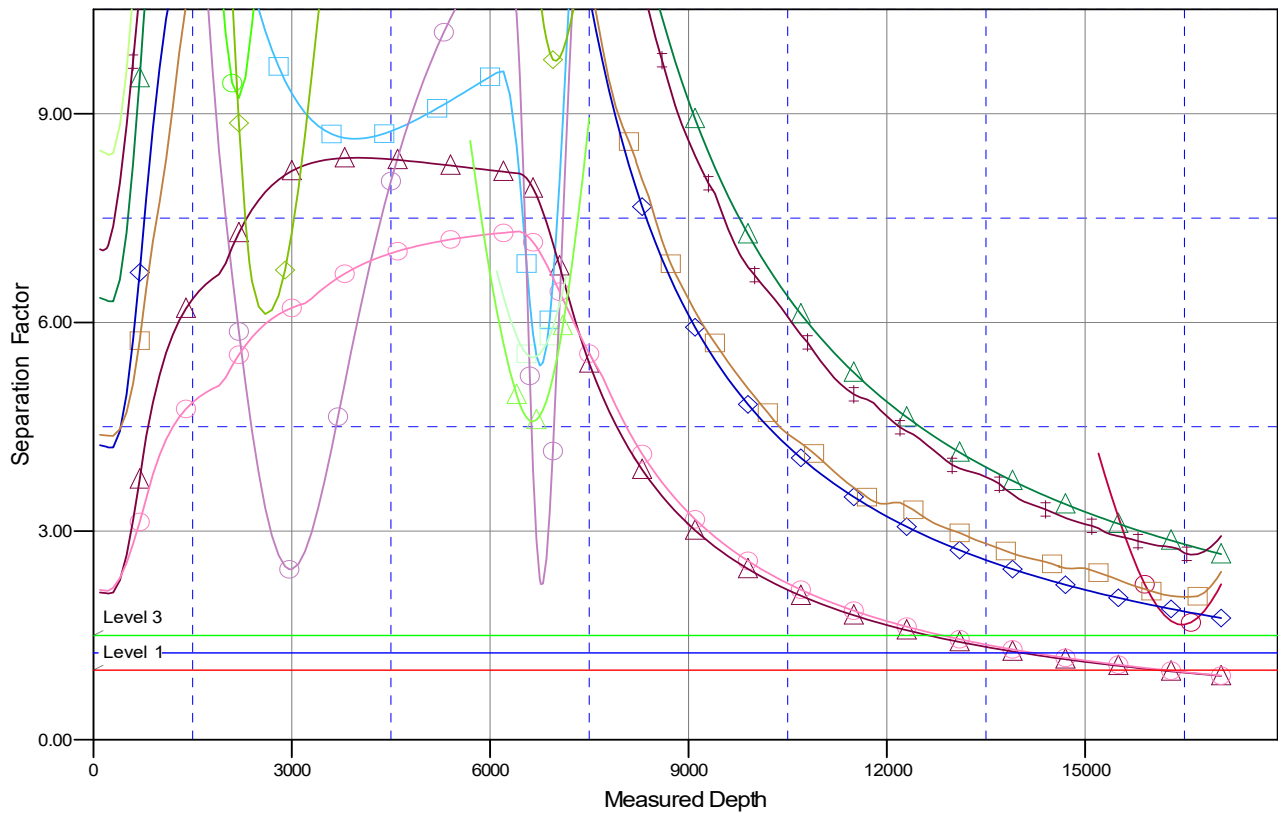
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Separation Factor Plot



LEGEND

STATE C 14-36, Noble Energy T/A Well, No Surveys V0	BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design#2 V0
BOYD 241309H, Plan A, Design #1 V0	HELEN 2536-09H, Plan B, Design#2 V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design #1 V0	HELEN 2536-10H, Plan B, Design#2 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241311H, Plan A, Design #1 V0	HELEN 2536-11H, Plan A, Design#1 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-07H, Plan B, Design#2 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241305H, Plan A, Design #1 V0	HELEN 2536-12H, Plan A, Design#1 V0	L.E. GERKIN 10H, Red Hawk Planned Well, Cathedral Planned Surveys V0
BOYD 241310H, Plan A, Design #1 V0	HELEN 2536-09H, Plan B, Design#2 V0	L.E. GERKIN 10H, Red Hawk Planned Well, Cathedral Planned Surveys V0